

ABSTRACT

A prosthetic component is configured to have intentional interruptions in an articulating face thereof. The intentional interruptions are configured to yield an optimum contact area or bearing surface, particularly with regard to low wear and greater lubricity through the application of lubrication and contact mechanics theory for the particular prosthetic component. Such optimization is applied to a wide range of prosthetic component sizes of the particular prosthetic component. The optimum range of percentage area of relief or interruptions, defined as a percentage of a baseline uninterrupted bearing surface area to be removed by the features of the interrupted bearing surface configuration is from 0.3% to 73.7% for hard –on-hard bearing components and from 5.7% to 83.2% for polyethylene-on-hard bearing components. The range for both hard-on-hard and polyethylene-on-hard implants translates to a relieved area ranging from 0.3% to 31.9% of the area of the entire articulating surface, depending on the size of the implant. For both hard-on-hard and polyethylene-on-hard bearing combinations, optimally decreasing the contact area or bearing surface by interruptions in the articulating surfaces will allow for the benefits of larger diameter prosthetic components with an increased range of motion and decreased potential for dislocation, and the low frictional torques and lower wear of smaller diameter components.